

ETHNOBOTANICAL REPORT FROM MANGROVES OF PICHAVARAM, TAMIL NADU STATE, INDIA

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ABSTRACT

Ethnobotany deals with the study of the natural and traditional interrelationships between man and plants. Mangroves are one of the primary features of coastal areas and play a significant role in coastal development. Mangrove areas are economically exploited, especially for timber and fishery products. A comprehensive knowledge about other aspects, such as active substances obtained from mangroves, is less freely available. This paper reviews the utilization of the mangroves as source of medicinal products for the Pichavaram coastal people. A floristic survey was undertaken and 11 ethnomedicinal plant species belonging to 8 families were recorded from the Pichavaram mangroves. A list of plant species along with the plant part/s used and their mode of application reported to be efficacious for different ailments is provided.

RESUMEN

La Etnobotánica trata del estudio de las interrelaciones naturales y tradicionales entre el hombre y las plantas. Los manglares son una de las características primarias de las áreas costeras y juegan un papel importante en el desarrollo costero. Las áreas de manglar son explotadas económicamente, especialmente para madera y productos pesqueros. Un conocimiento exhaustivo de otros aspectos, tales como principios activos que se obtienen de los manglares, está menos disponible. Este artículo revisa el uso de los manglares como fuente de productos medicinales por los habitantes costeros de Pichavaram. Se realizó un estudio florístico y se encontraron 11 especies vegetales etnomedicinales de 8 familias en los manglares de Pichavaram. Se aporta una lista de especies vegetales junto con la parte o partes usadas y su modo de uso para que sean eficaces en diferentes enfermedades.

INTRODUCTION

Mangroves are assemblages of trees and shrubs that grow in the intertidal region of tropical and subtropical coastlines, in areas where river water mixes with sea water. Mangroves have two components, mangrove forests and their

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associated water bodies. A group of woody trees and shrub that can grow well in saline water and logged condition constitute the forest component (Selvam & Karunakaran 2004). Pichavaram is in the North-East coastal part of Tamil Nadu State and lies between Lat.11° 27' N; Long. 79° 47' E.

The Pichavaram mangrove wetland is located in the northern extremity of the Cauvery delta, near the mouth of the Coleroon River. Its total area is about 1,350 ha, with its many small islands being colonized by thirteen true mangrove species. Remote sensing data indicates that nearly 54% of the mangrove forest of Pichavaram (total forested area 700 ha, excluding water bodies, sand dunes etc.) was in a degraded state in 1986. Analysis of the remote sensing data of 1996 showed that the mangrove forest cover has increased by about 60 ha compared to the area in 1987, which is mainly due to the restoration efforts being undertaken collaboratively by the Tamil Nadu Forest Department and M.S. Swaminathan Research Foundation along with the participation of the local communities. Pichavaram mangrove receives fresh water mostly during the northeast monsoon season from October to November. It is reported that 13 species are present in the mangrove wetlands, Tamilnadu; these include two species of *Rhizophora* in Pichavaram, which are regarded as endangered species, a fact that underlines the importance of the Pichavaram mangrove from a biodiversity stand point.

Currently there is an increasing desire to unravel the centuries old secrets of traditional medicines. In India, ethnobotanical studies with a good scientific base have appeared in last 1-5 decades (Chopra et al. 1956; Jain 1963, 1965; Jain & Borthakur 1980; Bhargara 1981; Yadav & Patil 2001).

MATERIALS AND METHODS

An ethnobotanical survey of the forest people of Pichavaram mangrove was undertaken during the 2001-2002. Through repeated interactions and participatory rural appraisal (PRA), details on the ethnobotany of the plants used by the folk population were gathered with villagers using the methods described by Jain (1983). According to Jain (1987) samples of plants were collected, identified and voucher specimens were deposited in the Department of Botany, Faculty of Science, Annamalai University, Annamalainagar, Tamilnadu. The collected plants were identified using the flora of the Presidency of Madras (Gamble & Fischer 1915-1935) This paper describes the most important medicinally used plants.

RESULTS

The traditional knowledge system in Tamilnadu State is fast eroding. There is an urgent need to record all ethnobotanical information among the diverse ethnic communities before the traditional culture is completely lost. As of result of the present study the ethnobotanical use of 11 plant species belonging to 8

families have been reported from the Pichavaram mangrove area. A range of preparations are used to treat diseases. The most popular medicinal preparations are plant extract, decoction, paste and juice. Information on botanical name, herbarium number, local name, family, diseases cured/uses, parts used and mode of application are given in the Table 1.

DISCUSSION AND CONCLUSION

There is an increasing demand for the production of healthcare medicines and cosmetic items from plant origin based on the ancient knowledge in folk remedies. Plant sources are being identified for further investigation for their pharmacological properties and efforts are also being made to investigate the activities of isolated individual constituents.

Eleven species of mangroves were identified as medicinally important for the treatment of snakebite, skin diseases, dysentery, urinary disorders as well as for birth control and as blood purifiers.

Communities (Irulars and Meenavars) living close to and interacting with the Pichavaram mangrove wetlands have gained a unique cognitive understanding of the medicinal values of the plants within the mangroves. Experience has led to a rich knowledge system that is reflected in the native classifications of mangrove wetlands.

The role of ethnobotanical studies is of crucial importance as some miraculous medicines for incurable diseases are known to the local communities. As knowledge acquired through the ages is usually passed on from generation to generation, it is necessary to popularize the identity and utility of these medicinal plants.

Management systems are losing their value because of various factors. Any assistance to protect these traditional systems will win the confidence of the local people; this in turn will be the first step toward the success of community-based mangrove conservation and management. The collection and documentation of traditional knowledge on ethnomedicines is important for finding new, effective safe drugs for a range of ailments. However, to give more support to the above findings, further investigation is needed for the isolation of the active principles and for the pharmacological evaluation of different medicinal plant species.

The estimation of the number of endangered medicinal plants is rising day by day (Jain 1992). Medicinal plants are threatened due to over exploitation, shifting cultivation, deformation and environmental pollution (Karuppusamy et al. 2002). The conservation of medicinal plants not only saves local lives but also improves the socio economic condition of the people where the plants exist. The following strategies have been suggested for the conservation of medicinal plants.

TABLE 1. Ethnobotanical report from mangroves of Pichavaram, Tamil Nadu State, India.

Latin Name/Family (Voucher Specimen)	Local Name	Disease Cured/Uses	Parts Used	Mode of Application
<i>Acanthus ilicifolius</i> L., Acanthaceae (AUB 102)	Kazhimulli	Snakebite	Fruits	Crushed fruits are made into a dressing and applied as a dressing to the snake bite.
		Kidney stones	Whole plant	The whole plant is boiled in water and the patient drinks the final solution, half of a glass each time until the signs and symptoms of the kidney stones disappear.
		Skin diseases, small pox, health promotion, detoxification and ulcer Birth control	Whole plant	A whole plant paste is applied to the affected body for skin diseases. The juice is orally given for other diseases.
<i>Avicennia alba</i> Blume, Avicenniaceae (AUB 108)	Vellaikandal		Resin	Resinous substances are mixed with water and given orally.
<i>Avicennia officinalis</i> L., Avicenniaceae (AUB 110)	Narikandal	Bone pain, urinary disorders, bronchial asthma, stomach disorders and detoxification	Leaves	The leaves are boiled in water and the extract is given orally
<i>Bruguiera cylindrica</i> (L.) Blume, Rhizophoraceae (AUB 532)	Pannukkuchi	Tumor inhibitors, constipation	Leaves	Leaves contain alkaloids. A leaf paste is applied to the tumor.
			Whole plant	The whole plant is boiled in water and the solution is drunk twice daily after meals
<i>Clerodendron inerme</i> Gaertn., Verbenaceae (AUB 428)	Peenarisangu	Pain, jaundice, washing dishes malaria, infected wounds, anti-inflammation and itching skin	Leaves	A leaf paste is used.
			Sap of leaves	Leaf sap is used
			Leaf extract	Leaf extract and paste is used.

TABLE 1. (continued)

Latin Name/Family (Voucher Specimen)	Local Name	Disease Cured/Uses	Parts Used	Mode of Application
<i>Excoecaria agallocha</i> L., Euphorbiaceae (AUB 483)	Thillai	Toothache	Latex	A latex extracted from leaves and bark is applied to the tooth.
<i>Ipomoea pes-caprae</i> (L.) Sweet, Convolvulaceae (AUB 325)	Adappankodi or Kuthiraikulambu	Anti-inflammation	Roots	Fresh root material is used.
		Wandering and swelling	Whole plant	A whole plant extract is used.
		Skin diseases	Leaves	A leaf paste is used.
<i>Rhizophora mucronata</i> Lam., Rhizophoraceae (AUB 372)	Kanthai	Fatigue	Seeds	Crushed seeds are used.
		Diarrhea, nausea and vomiting	Bark	A bark extract is given orally.
<i>Rhizophora apiculata</i> Blume, Rhizophoraceae (AUB 333)	Kandal	Diarrhea, vomiting, ameobiasis and stop bleeding	Bark	A bark extract is given orally.
<i>Salicornia brachiata</i> Roxb., Chenopodiaceae (AUB 238)	Kozhikali or Seethavavazham	Itches	Whole plant ash	The plant ash is applied to the skin.
<i>Xylocarpus granatum</i> K.D. Koenig Meliaceae (AUB 267)	Somundri	Dysentery	Bark	A bark extract is used.
		Illumination of hair	Oil	Oil extracted from the seeds is applied to the hair.
		Diarrhea and cholera	Bark	A bark decoction is given orally.

- a) Control over exploitation
- b) Establishment of mangroves
- c) Cultivation of rare and endangered medicinal species
- d) Awareness creation of the utility and conservation of medicinal plants to local communities

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